withstanding the fact that Newcomb has called it, rather happily, the "playground of mathematics." It is the fairyland of mathematics, and like other fairylands a land in which we may do all sorts of impossible things.

The serious student of the subject calls it "Hyperspace," but there are comparatively few who are willing to spend the time and effort necessary, so "Hyperspace" never has many in its roll of enthusiastic followers.

Fortunately it is possible to make a rather extended excursion into the land of four dimensions with a very moderate mathematical equipment, as I hope to show, and to find there many things never dreamed of before and also to find *possible* explanations of mysteries that have puzzled for ages. Once the existence of the new direction is granted, very little is impossible.

Without carefully defining what we mean by space, for that might leave us with our ideas more vague than at present, I shall assume that you know what space is better than I can tell you. Probably Lodge's definition, "Room to move about," would satisfy us. We may speak of space of no dimenisons, of one, two, three or of as many as there are independent directions of motion. By independent directions, I mean perpendicular directions, for then, in no way can one be made up of parts that belong to others, as would be the case if they were not perpendicular to each other. For example, a line on the surface of the earth pointing N.E., is pointing E. and N. at the same time. I may explain the dimensions of space as follows: On a straight line, the position of any point is defined by giving its distance from a fixed point of reference; on a plane a point may be located by giving the distances from two intersecting perpendicular lines which we may call axes. Thus two dimensional space requires two distances or magnitudes in order to locate a point. In our space we may assign position to a point by giving distances parallel to three mutually perpendicular lines. We reach this conclusion then, in any space the number of dimensions is the same as the number of magnitudes necessary to locate a point. Again, in space of one direction, there is a single infinity of points spread out along the infinite line. In two dimensions or three dimensions there are a double infinity of points, or a triple infinity of points. Now why do we stop with three dimensional space, for we may eas-